

CLAIMS

1. A printing apparatus, comprising:

5 (A) a carry mechanism that carries a medium along a predetermined direction;

(B) a nozzle that performs a moving and ejecting operation for ejecting ink toward the medium while moving relatively with respect to the medium, during an interval of a carry operation by the carry mechanism; and

10 (C) a signal output section that outputs a first timing defining signal defining a periodical timing for ejecting ink from the nozzle toward a position corresponding to a pixel configuring an image to be printed, and a second timing defining signal defining a periodical timing for ejecting ink from the nozzle toward a
15 position displaced from the position corresponding to a pixel configuring an image to be printed,

wherein the signal output section outputs either the first timing defining signal or the second timing defining signal for each moving and ejecting operation.

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2. A printing apparatus according to claim 1,

wherein the first timing defining signal and the second timing defining signal are output alternately from the signal output section.

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3. A printing apparatus according to claim 1 or 2,

wherein a displacement width between the position corresponding to the pixel and the displaced position is narrower than a spacing between pixels configuring an image to be printed.

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4. A printing apparatus according to claim 3,

wherein the displacement width is a half of the spacing between pixels configuring an image to be printed.

35 5. A printing apparatus according to any one of claims 1 to 4,

wherein ink is ejected successively two or more times from the nozzle according to a certain timing defined by at least one of the first defining timing signal and the second defining timing signal.

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6. A printing apparatus according to claim 5,

wherein of the ink ejected successively two or more times from the nozzle according to the certain timing, ink ejected first is ejected toward the position corresponding to the pixel or the
10 displaced position.

7. A printing apparatus according to claim 5 or 6,

wherein when ink is ejected successively two or more times from the nozzle according to the certain timing, a spacing between
15 a position on the medium on which ink ejected first lands and a position on the medium on which ink ejected last lands is wider than a spacing between pixels configuring an image to be printed.

8. A printing apparatus according to any one of claims 5 to 7,

20 wherein when ink is ejected successively two or more times from the nozzle according to the certain timing, the quantity of ink ejected each time differs.

9. A printing apparatus according to any one of claims 1 to 8,

25 wherein the moving and ejecting operation for ejecting ink to be ejected toward a position corresponding to a certain pixel configuring the image and a position displaced from such position is different from the moving and ejecting operation for ejecting ink to be ejected toward a position corresponding to another pixel
30 adjacent to the certain pixel in a moving direction of the nozzle and a position displaced from such position.

10. A printing apparatus according to any one of claims 1 to 9,
comprising a plurality of the nozzles.

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11. A printing apparatus comprising:

(A) a carry mechanism that carries a medium along a predetermined direction;

5 (B) a nozzle that performs a moving and ejecting operation for ejecting ink toward the medium while moving relatively with respect to the medium during an interval of a carry operation by the carry mechanism; and

10 (C) a signal output section that outputs a first timing defining signal defining a periodical timing for ejecting ink from the nozzle toward a position corresponding to a pixel configuring an image to be printed, and a second timing defining signal defining a periodical timing for ejecting ink from the nozzle toward a position displaced from the position corresponding to a pixel configuring an image to be printed,

15 wherein the signal output section outputs either the first timing defining signal or the second timing defining signal for each moving and ejecting operation,

wherein

20 (E) the first timing defining signal and the second timing defining signal are output alternately from the signal output section,

(F) a displacement width between the position corresponding to the pixel and the displaced position is narrower than a spacing between pixels configuring an image to be printed,

25 (G) the displacement width is a half of the spacing between pixels configuring an image to be printed,

30 (H) ink is ejected successively two or more times from the nozzle according to a certain timing defined by at least one of the first defining timing signal and the second defining timing signal,

(I) of the ink ejected successively two or more times from the nozzle according to the certain timing, ink ejected first is ejected toward the position corresponding to the pixel or the displaced position,

35 (J) when ink is ejected successively two or more times from

the nozzle according to the certain timing, a spacing between a position on the medium on which ink first ejected lands and a position on the medium on which ink ejected last lands is wider than a spacing between pixels configuring an image to be printed,

5 (K) when ink is ejected successively two or more times from the nozzle according to the certain timing, the quantity of ink ejected each time differs,

(L) the moving and ejecting operation for ejecting ink to be ejected toward a position corresponding to a certain pixel
10 configuring the image and a position displaced from such position, is different from the moving and ejecting operation for ejecting ink to be ejected toward a position corresponding to another pixel adjacent to the certain pixel in a moving direction of the nozzle, and a position displaced from such position, and

15 (M) provided with a plurality of the nozzles.

12. A printing method comprising:

a step of carrying a medium along a predetermined direction;

a step of performing a moving and ejecting operation for
20 ejecting ink toward the medium from a nozzle while moving the nozzle relatively with respect to the medium, during an interval of carrying the medium;

a step of outputting a first timing defining signal defining a periodical timing for ejecting ink from the nozzle toward a
25 position corresponding to a pixel configuring an image to be printed;

a step of outputting a second timing defining signal for defining a periodical timing to eject ink from the nozzle toward a position displaced from the position corresponding to a pixel
30 configuring an image to be printed; and

a step of selecting either the first timing defining signal or the second timing defining signal as a signal to be output for each moving and ejecting operation.

35 13. A program that executes

a step of carrying a medium along a predetermined direction,
a step of performing a moving and ejecting operation for
ejecting ink toward the medium from a nozzle while moving the nozzle
relatively with respect to the medium, during an interval of
5 carrying the medium,

a step of outputting a first timing defining signal defining
a periodical timing for ejecting ink from the nozzle toward a
position corresponding to a pixel configuring an image to be
printed,

10 a step of outputting a second timing defining signal defining
a periodical timing for ejecting ink from the nozzle toward a
position displaced from the position corresponding to a pixel
configuring an image to be printed, and

a step of selecting either the first timing defining signal
15 or the second timing defining signal as a signal to be output for
each moving and ejecting operation.

14. A printing system comprising a computer and a printing
apparatus capable of communicating with the computer, wherein the
20 printing apparatus includes:

a carry mechanism that carries a medium along a predetermined
direction;

a nozzle that performs a moving and ejecting operation for
ejecting ink toward the medium while moving relatively with respect
25 to the medium, during an interval of a carry operation by the carry
mechanism; and

a signal output section that outputs a first timing defining
signal defining a periodical timing for ejecting ink from the nozzle
toward a position corresponding to a pixel configuring an image to
30 be printed, and a second timing defining signal defining a periodical
timing for ejecting ink from the nozzle toward a position displaced
from the position corresponding to a pixel configuring an image to
be printed, wherein the signal output section outputs either the
first timing defining signal or the second timing defining signal
35 for each moving and ejecting operation.